



**BHP Copper**

Certified mail *PG14118127*

February 28, 1997

Shirin Tolle  
Project Officer  
APP Mining Unit  
Arizona Department of Environmental Quality  
3033 North Central Avenue  
Phoenix, Arizona 85012

Re: Comment on Aquifer Protection Draft Permit P-101704

Dear Ms. Tolle,

BHP Copper is submitting comments in response to the Public Notice 4-97AZAP dated January 30, 1997. Many of the comments are concern either typographical or suggested wording changes to add clarity to the permit explanation or conditions. The comments are listed below:

**General Comments**

BHP understands from discussion with your office that exceedance of an AQL would not result in civil penalty, criminal liability, injunctions, or citizen suits as long as the contingency plan as outline in the permit was complied with fully. BHP has accepted points of compliance closure to the facility than necessary for normal APP purposes and as such BHP should be protected by the language of the permit. BHP requests specific language that clearly states that an exceedance of an AQL at a point of compliance will not be considered a violation of the permit as long as BHP complies with the contingency plan requirements in Subsection F of Part II of the Permit. Part VII of the permit also needs to be amended to state this position. If the permit is left as written and read literally, the permit creates a situation, even if BHP complies with the contingency plan completely, which could be interpreted to subject BHP to civil penalties, an injunction, or even citizens suit because of the exceedance. BHP request that language be added to clarify this issue.

The establishment of sulfate as an "early warning indicating a potential violation of an Aquifer Water Quality Standard.. or any permit condition " as stated in Part V is merely to utilize an easily identifiable ion an early warning system. There is no numeric aquifer water quality standard for sulfates and sulfate is only intended to be an indicator that there is a potential loss of solution from the leach system. BHP requests that a notation as such be included wherever an AQL for sulfate is listed as the State has not adopted a regulatory standard for sulfate.

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Part II Specific Conditions A. Facility Description Page 2 of

First paragraph , first sentence

BHP request that the word "reclaim" be changed to "close". The word close applies to in-situ mining where reclaim reflects a meaning to the public of reclaim of the surface lands.

Second paragraph

BHP suggest that the word "typically" be relocated in order to add clarity and the wells will be screened in 200-400 foot intervals but may be screened less than 200 if the ore zone is thin and for the greater that 400 intervals screen intervals will be based upon an economic decision. The suggested wording is:

"Injection will typically occur throughout screened intervals of typically 200 to 400 feet...."

Third paragraph

Change electron-won to electrowon. The correct common use is electrowon.

Fourth paragraph

Insert "main distribution" after the words Above ground. BHP has agreed to line the main distribution pipelines to and from the leach field to the PLS and raffinate ponds but not the smaller distribution pipelines in the leach system. The addition of those words will more clearly reflect BHP's BADCT design.

Page 3 of C.1. In situ mine area

second paragraph

The fracture gradient pressure of 0.6 should read 0.65 to reflect the field data and parallel the same value listed in the U.I.C. draft permit. BHP requests that the vale be changed to 0.65 psi/ft depth.

Third paragraph

It is BHP's understanding that this section is a general explanation and not a condition. The permit condition is defined in the Contingency Plan Section F.2. BHP suggest that the reference to the contingency plan be included for clarity. BHP suggest that the last sentence be rewritten to state:

"The operation of the recovery wells and **adjacent** observation wells will be ~~continuously~~ monitored as **described in Section II.E ...**" BHP suggest striking "continuously" as the discrete wells will change location during the mine life. The bolded wording makes the conditions clearer.

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Fifth paragraph

BHP has indicated that during closure, neutralizing additives may be added to enhance precipitation of salts in the formation and neutralize the pH. This condition has been included in the U.I.C. draft permit and should be included in the APP permit. BHP is being regulated on the primary AWQS and this word should be added for clarity. In addition, all of the test work, background sampling and action levels are based upon the current AWQS. The standards may change during the mine life so addition of a date as those limits are effective as of the date of the permit would add clarity. The suggested wording is in bold.

“ ... fresh formation water and **neutralizing agents to aid in closure** to a level that meets **primary Arizona Water Quality standards (AWQS) as of the effective date of the permit.**

For clarity BHP suggests adding the U.I.C. reference in the first paragraph on page 4 of \_ to read:

“... Protection Agency (EPA) 40CFR 144 & 146

Page 4 of C.1.d.

After UIC add **40CFR 144 & 146** for clarity.

Page 4 of e.

Hydraulic pressure testing in compliance with UIC regulations is for injection wells and the requirement is for once every five years. BHP requests the and recovery be struck and once be added for clarity.

e. hydraulic pressure testing of operating injection ~~and recovery~~ wells shall be conducted no less than once every five years, and

page 4 of f.

Not all operations will be terminated if a well fails the a hydraulic pressure test. BHP requests that the words “of that well” be added after the word operation as shown below:

f. if an operating wells fails hydraulic pressure test, operation **of that well** shall be terminated ...

page 4 of 2. Process Ponds

first paragraph

BHP agrees to meet BADCT by meeting the 1 x 10<sup>-6</sup> cm/sec, but requests the wording be changed to allow for use of other materials as long as the BADCT condition is met. Other types of bentonite may be equivalent. The requested wording is :

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"... which will be modified by mixing ~~3% Wyoming~~ bentonite or **other additive** to achieve a saturated hydraulic permeability of no more than  $1 \times 10^{-6}$  cm/sec." The bolded word are the additions.

Page 4 of 2.a.

Reference 14 of APP Application Volume VIII of the Fluor Daniel Wright amendment states that the design capacity of the PLS and raffinate ponds are 1,262,043 and 1,225,878 gallons respectively. The additional storm capacity brings the total storage volumes to 1,337,180 and 1,338,714 gallons respectively. The value listed is incorrect as stated in the permit.

Page 5 of 3. Evaporation Ponds first paragraph

The stated 12 acre pond area is for the operating level at the top of the pond. The area indicated (470x 700) is for the area at the bottom of the pond where the wall slopes start. The total surface area is the 12 areas, but the dimension listed calculate to 7.55 acres. For clarity BHP suggest dropping the dimension to avoid confusion. The last sentence can create some problems. As you know, the State mine Inspector has claimed jurisdiction over these ponds and according to BILL Haws, Assistant State Mine Inspector, may develop an MOU with ADWR on this issue. BHP request that the words "subject to their jurisdiction" be added after ADWR to clarify the issue. BHP agrees to seek plan review from ADWR, but will submit the Dam Safety permit under the caveat that BHP believes that jurisdictional control should be under the State Mine Inspectors office.

page 5 of 3. a.

The capacity figure is incorrect. Substitute 14,436,400 cubic feet for 18,013,016 cubic feet as noted in Reference 10 of the volume VIII amendment. In addition the maximum operating level is 1485.5 feet and the crest is 1488 feet. Both changes should be made to correct the numbers.

Page 5 of 3.b.

BHP requests that this condition be dropped. The limiting condition is the capacity of the ponds themselves.

Page 5 of c.

BHP requests that the words "or other agency with jurisdiction" be added after ADWR in case an MOU is developed between the State Mine Inspectors office and ADWR.

Page 5 of d.

BHP request that this condition be dropped or modified as c. and e. in this section may require the footprint of the ponds to be modified in accordance with ADWR requirements. An alternative is delete the words "not exceed" and replace them with "approximate".

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**page 5 of e.**

Again, BHP requests that the words "or other agency with jurisdiction" be added after ADWR in case an MOU is developed between the Mine Inspectors office and ADWR.

**Page 6 of g.**

BHP requests that word "shall" be changed to "may." This still leaves the decision to the APP permit officer, but allows that decision to be made at the time of the request. BHP see no need to lock in a future permit officer to a fixed decision.

**Page 6 of a.**

The volume of capacity is misstated. The 1.9 million gallons equals 254,011 cubic feet. The other volume included what is in the run-off pond and the additional storm capacity in the basin in front of the pond. BHP requests that either the cubic footage be changed to 254,011 or left out for clarity. See Reference 14 in APPP VIII Appendix D.

**page 6 of c.**

Process solutions in the run-off pond may either be returned to their respective circuits or sent to the evaporation pond. BHP requests that sentence be clarified by rewording to state:

- c. storm water run-off and process spills directed to the run-off pond will be pumped as soon as possible either to their appropriate process circuits or to the evaporation pond.

**Page 6 of d.**

BHP requests that the word "discharged" be changed to "directed". The word discharged implies a release.

**Page 6 of D. 1.**

BHP request that the word be changed to "The permittee's PLS, Raffinate, and evaporation ponds will be zero discharge". BHP suggest that the suggested wording makes the statement clearer to the public.

**Page 5 of D.3.**

Mine blocks may be redefined as the process is optimized within the permitted are. The nature of in-situ mining is that blocks will not come on as large units but as rows or sections of mines zones. BHP requests that the wording be changed to make the sentence clearer as written below:

- 3. Injection of leach solutions on a commercial basis may not be commenced until all coreholes and other boreholes not related to the in-situ leaching operation but within 500 feet of an active mining area be abandoned in accordance..."

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Page 5 of D.4.

BHP requests that the statement be modified to include the bolded words shown below to add clarity:

“... shows that the total organic concentration **as described in Note 7 of Table IIA Part IV of this permit** in the raffinate **injectate** exceeds...”

The raffinate in the pond will contain some organic. The pond and skimmer acts as control device. The organic regulated is that injected into the ground.

Page 7 of D. 7.

Again, to be in compliance with the UIC permit the psi rating should state 0.65 not 0.6. BHP requests that the permit state 0.65 psi/ft depth.

Page 7 of E. first paragraph

BHP believes the first sentence has a redundant component and requests the following rewording:

All monitoring required in this permit shall continue for the duration of the permit, ~~regardless of the discharge or operational status of the facility~~, unless otherwise designated in this permit or an approved contingency plan **or approved by ADEQ.**

page 7 of E. b.

BHP request that the time be changed to 90 days. In additional, BHP request that another sentence be added as the results of the investigation may result in a monitoring change which should not result in a major modification. BHP requests the following sentence be added:

**“Results of this study may lead to changes in monitoring requirement but would not constitute a major modification to this permit.”**

Page 7 of E.2.

Section E.2. missing or mislabeled. BHP request clarification on this issue.

page 8 of 3.b. Underground Workings

BHP request the word pre-existing” be added so that the public does not interpret the wording to mean BHP will conduct underground mining activities or will do drifting and blasting.

Page 8 of c. (1)

BHP question the inclusion of words “ and their subsequent revisions:” at the end of the first paragraph. BHP believes that the permit conditions are set at the time of this permit, and should not be required to re-permit the facility based upon subsequent revisions.

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Page 9 of c. (1)

BHP believes that a verb is missing and suggest the following rewording of the first sentence:

Another method may be used upon approval by ADEQ.

Page 9 of 5.a.1.

Under RCRA rules, records need only be kept for 3 years. BHP requests that the ten years be reduced to 3 years to parallel other regulatory limits.

Page 10 of 5.c.

BHP request that the last sentence read:

This information shall be kept on-site for the life of the facility **unless otherwise approved by ADEQ.**

BHP reserves the right to request changes in either the location of storage of information or the quantity stored. AS BHP goes to paperless transactions, much information will be archived on computer, which may not be on-site.

Page 12 of (1) re: PLS and raffinate pond leakage rates

BHP has revisited the EPA Guidelines and found that a 2 mm hole (0.08") is normally expected for each acre of pond area which is above the level set in the permit as the action leakage rate by ADEQ. The action leakage rates are set far below that recently permitted at Pinto Valley at 1250 gal/acre/day. The Pinto Valley indicates that less than that amount no action is necessary. The PLS and raffinate ponds meet the BADCT guidance design criteria as recommended in the 1996 Guidance Document issued by ADEQ. The design by Fluor Daniel Wright Engineers has engineered a leakage control pump system at 20 gpm necessary to remove any leakage between the liners of up to an average of one 11 mm hole per acre (10,325 gal/acre/day or 7.17 gpm). Consequently, the action leakage rate should be set at a level based upon the engineered capacity to maintain a minimum head on the lower liner. BHP request that the action leakage rate be set at a value at least twice that of Pinto Valley due to the submitted BADCT design since the sump pump has a capacity capable of pumping the 10,325 gallons per acre per day or 4 times the 2500 gallon per acre per day rate requested by BHP at similar heads.

Page 12 of (2)

BHP request that "for increased " be changed to "to decrease" for clarity.

Page 12 c. (1)

The BADCT design requirements for the evaporation pond include a single liner with a compacted fill base. BHP has submitted a design which greatly exceeds the BADCT Guidance Documentation recommendation due to addition of a secondary liner system. The action leakage rate is extremely low

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when the submitted design is considered. A single 2 mm hole will produce 611 gal/acre per day with a 50 foot head. The stated action level of 153 gal/acre per day is onerous and set at rate about one fourth of that to be anticipated in normal operations. The addition of the second liner, coupled with the design pumping capacity in the LCRS sump of 200 gpm far exceeds BADCT and BHP request relief from this permit requirement. BHP request that either no action limit be set due to the design or a more reasonable limit set based upon the engineered controls in the pond LCRS system. BHP is willing to accept an action rate in line with its designed collection capacity. BHP suggest a level of 2500 gallons per acre per day which BHP believes is reasonable in light of the cost of installing a secondary liner system.

page 14 of 2.a.

BHP request that for clarity sake the wordings be amended (bolded added)to read:

- (1) adjust the flow rate for the **appropriate** recovery and/or injections,
- (2) inspect the... pressure transducers and other associated facilities **related to the active mining area.**
- (3) initiate pressure testing of the **appropriate** wells if..."

page 14 of 2.b. (1)

"in the affected areas" should be added to parallel the statement in (1). BHP request that the modification be made for clarity.

Page 14 of 2.d.

BHP requests that the word raffinate be replaced with injected solution or injectate. The raffinate solution in the raffinate pond may contain organic. The pond is a control device and is equipped with a skimmer. The organic should be regulated upon injection.

Page 15 of 3.b. Spills

BHP requests that the second and third sentences be modified as shown below to make it more technically correct:

"If the material is identified to be PLS, **raffinate, sulfuric acid or other process solutions**, the permittee may return it to the process."

The last sentence would be clearer if written.

" Any materials not recycled to the process streams must be disposed in accordance with applicable state and federal regulations."

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Page 15 of 5.

BHP recommends deleting the word "General" as unneeded for clarity.

Page 17 of F. a. (1) and b.

BHP believes (1) should be deleted as the same information is stated in b.

Page 17 of G.

BHP recommends changing the word "Program" to "Mining Unit" and amending the last sentence in this paragraph to read:

"Notification of the temporary cessation... unless otherwise specified in this permit or approved by ADEQ."

The addition of these words give the option to changing this condition to the APP permit officer.

Page 18 of first paragraph

ADEQ compliance standards are based upon AWQS. The use of the primary MCL term seems redundant wherever used. BHP requests that the reference is not needed and implies two levels of standards.

Page 18 of 2. Last paragraph

BHP is being regulated on AWQS and not sulfate. The sulfate is merely used as an expedient method to minimize assay cost. The references to sulfate should be dropped and replaced by AWQS, since BHP will test to insure that AWQS are met. BHP request the following substituted language in bold:

"When all individual wells concentrations are below the ~~indicator-sulfate-concentration~~ **AWQS levels**, hydraulic control will be discontinued for 90 days. At the end of the 90 day period, the headers will be re-sampled and if the ~~sulfate-concentrations~~ remain below the ~~indicator-sulfate-concentration~~ **AWQS**, then the permittee...:

page 18 of 3. Evaporation Pond Closure

BHP request that the one year pre-closure notification be changed to 180 days. BHP believes that the one year notification period is excessive and that the conditions of closure allow an adequate response by ADEQ within the 180 day period.

Page 19 of 2.b.

BHP request that the words "At a minimum" be deleted. ADEQ along with EPA has agreed that a 30 year monitoring period is adequate. A contingency plan is in place in case of failure to meet AWQS during that time.

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**Page 19 of K.1.**

BHP requests that the wording be changed to "60 days prior to construction". A 60 day period should be adequate for ADEQ to review the results of the test work, and allows for input by ADWR and the State Mine Inspectors office during their reviews. ADWR may not be able to complete their review within 60 days of the permit being issued.

**Page 20 of a. , b., c, d, and e.**

BHP request that wherever the "effective date of the permit" is changed to "60 days prior to start of construction " for the same reason listed above. BHP has agreed to review by ADWR but cannot control their schedule. The requested rewording allows both ADWR and ADEQ adequate time for response.

BHP further requests that anywhere ADWR is mentioned, amended wording is added stating "or other State agency having jurisdiction".

**Page 20 of e.**

BHP requests that a line be added to the end of this paragraph that states:

"If ADEQ does not respond within 30 days, the submittal is deemed approved."

ADEQ should be able to respond within 30 days and a positive action requires additional work on the part of the ADEQ permit officer.

**Page 21 of 3.**

BHP may or may not mine in the area of the underground workings and shafts or may modify its in-situ mining procedure as the process becomes optimized. BHP therefore requests that the wording of the first sentence be modified to read:

**"Sixty days prior ~~from the effective date of the permit to commencement of leaching within 500 feet of the shafts or underground workings of the existing underground mine~~, the permittee shall submit the following information on in-situ solution recovery from the... to the ADEQ Aquifer Protection Permit Program Mining Unit."**

**Page 21 of 3.d.**

BHP request that the words "water quality monitoring and contingency" be struck. The goal is to ensure that the workings do not act as conduit to the Basin Fills Units which is adequately stated in the last part of this sentence and these plans may not be needed based upon the plan submitted to ADEQ at the time when leaching approaches 500 feet of the shafts or underground workings.

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Page 25 of B.

The last part of the sentence is missing (bolded). BHP believes the sentence should read :

**"Upon initial submittal of samples to a state certified laboratory for analysis, a copy of the appropriate portions of the signed permit shall be forwarded to the laboratory for reference."**

Table IV.C. 027

The fluoride AQL should be 4.2 not 4.0.

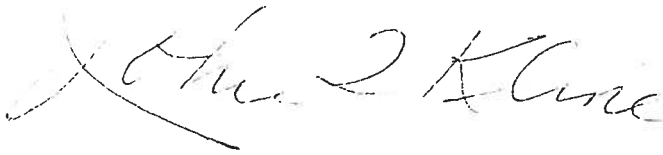
The alert level for radium 226+radium 228 should be 2.3 not 2.0

Table IV.

The daily inspection in the first and second section should read **"no evidence of seepage..."** The word no was omitted.

BHP Copper appreciates the opportunity to make these comments in response to the permit publication.

Sincerely,

A handwritten signature in dark ink, appearing to read "John T. Kline", is written over a horizontal line.

John T. Kline  
Project Manager

cc: C. Taylor-BHP Copper  
J. Southall-Brown and Caldwell  
G. Olson-Region IX EPA